

## Claims:

1. A method of preparing a ceramic artificial crown by applying at least one kind of dental porcelain selected from the group consisting of a body porcelain, an incisal porcelain and a translucent porcelain onto the surface of a ceramic core molded by heating and softening a ceramic material and putting it into a mold with the application of a pressure followed by firing; wherein
  - said mold is formed by burning a wax pattern after having removed a crucible former from an assembly which comprises:
    - said crucible former having a pole member formed on the central portion of a cylinder with bottom,
    - said pole member having a recessed fitting portion at a central portion in the upper surface thereof;
    - said wax pattern secured to said recessed fitting portion and applied with a solid lubricant on the surface thereof;
    - a ring with a backing layer that engages with said cylinder with bottom; and
    - a investment material filled and cured between said ring and a tooth-shaped model; and wherein a portion corresponding to the pole member of the crucible former of said mold is filled with a ceramic material which is, then, pushed by a plunger to mold a ceramic core.
2. A preparation method according to claim 1, further including a step of coloring the surface by applying a surface-coloring material onto the surface of a fired article on which a porcelain is baked followed by firing, and a step of lustering by applying a glazing powder onto the surface of the fired article obtained through the above step followed by firing, thereby to obtain a highly aesthetic fully ceramic artificial crown.

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3. A preparation method according to claim 1 or 2, wherein the solid lubricant is applied to the wax pattern by applying a suspension containing a solid lubricant, an organic binder and an organic solvent, followed by drying.

5 4. A preparation method according to claim 3, wherein said suspension comprises from 0.1 to 30% by weight of a solid lubricant, from 0.1 to 20% by weight of an organic binder and the remainder of an organic solvent.

10 5. A preparation method according to any one of claims 1 to 4, wherein the ceramic material put into the mold has a viscosity of from  $10^2$  to  $10^9$  poises.

6. A preparation method according to any one of claims 1 to 5, wherein the ceramic material is a crystallizable  $MgO - CaO - SiO_2$  glass material.

15 7. A preparation method according to any one of claims 1 to 6, wherein the pole member of the crucible former has a diameter which is widened downward being tapered at 0.005 to 0.120.

20 8. A preparation method according to any one of claims 1 to 7, wherein said plunger is made of a ceramic material having a melting point or a decomposition temperature, whichever is lower, which is higher than a temperature of forming the ceramic artificial crown and having a thermal conductivity of not smaller than 0.1  
25  $(\text{cal} \cdot \text{cm}^{-1} \cdot \text{sec}^{-1} \cdot ^\circ\text{C}^{-1})$  or a coefficient of linear expansion of not larger than  $4.0 \times 10^{-6} (^\circ\text{C}^{-1})$ .

9. A preparation method according to any one of claims 1 to 8, wherein a solid lubricant is adhered in advance onto the surface of the plunger that comes into  
30 contact with the ceramic material.

10. A preparation method according to any one of claims 1 to 9, wherein a dental porcelain is baked after having applied, onto the surface of a ceramic core, a kneaded product obtained by kneading, with water, a body  
35 porcelain, an incisal porcelain or a translucent porcelain

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which comprises:

100 parts by weight of a glass material containing, on the basis of the oxides, 57 to 65% by weight of  $\text{SiO}_2$ , 8 to 18% by weight of  $\text{Al}_2\text{O}_3$ , 15 to 25% by weight of  $\text{B}_2\text{O}_3$ , 0.1 to 2% by weight of  $\text{ZnO}$ , 3 to 7% by weight of  $\text{Na}_2\text{O}$  and 2 to 8% by weight of  $\text{Li}_2\text{O}$ ; and

0.1 to 10 parts by weight of an inorganic crystalline powder having a refractive index which is different from the refractive index of the glass material by 0.01 to 0.1, and having an average particle diameter of from 0.1 to 10  $\mu\text{m}$ .

11. A preparation method according to any one of claims 1 to 10, wherein the step of coloring the surface and the step of lustering are effected by applying a kneaded product onto the surface of the fired article obtained in the step preceding said steps followed by firing, said kneaded product being obtained by kneading a staining powder and a glazing powder each comprising, as a chief sintering component, a glass material containing, on the basis of the oxides, 57 to 65% by weight of  $\text{SiO}_2$ , 8 to 18% by weight of  $\text{Al}_2\text{O}_3$ , 15 to 25% by weight of  $\text{B}_2\text{O}_3$ , 0.1 to 2% by weight of  $\text{ZnO}$ , 3 to 7% by weight of  $\text{Na}_2\text{O}$  and 2 to 8% by weight of  $\text{Li}_2\text{O}$  with a kneading solution containing not less than 5% by weight of an ester compound having a boiling point of from 100 to 250°C.

12. A dental porcelain used as a body porcelain, an incisal porcelain or a translucent porcelain in the preparation of a ceramic artificial crown, and comprising:

100 parts by weight of a glass material containing, on the basis of the oxides, 57 to 65% by weight of  $\text{SiO}_2$ , 8 to 18% by weight of  $\text{Al}_2\text{O}_3$ , 15 to 25% by weight of  $\text{B}_2\text{O}_3$ , 0.1 to 2% by weight of  $\text{ZnO}$ , 3 to 7% by weight of  $\text{Na}_2\text{O}$  and 2 to 8% by weight of  $\text{Li}_2\text{O}$ ; and

0.1 to 10 parts by weight of an inorganic crystalline powder having a refractive index which is

different from the refractive index of the glass material by 0.01 to 0.1, and having an average particle diameter of from 0.1 to 10  $\mu\text{m}$ .

13. A dental porcelain according to claim 12,  
5 wherein said glass material has a coefficient of linear expansion of not larger than  $6.0 \times 10^{-6} (^{\circ}\text{C}^{-1})$ .

14. A kit used for the preparation of a ceramic artificial crown, which comprises:

a crucible former having a pole member formed on  
10 the central portion of a cylinder with bottom, said pole member having a recessed fitting portion at a central portion in the upper surface thereof with which a wax pattern is to be secured;

a ring that engages with the cylinder with bottom  
15 of said crucible former;

a backing member fitted to the inner surface of the ring;

a investment material filled between the crucible former and the ring;

20 a plunger for pushing the ceramic member filled in a portion corresponding to the pole member of the crucible former of the mold that is formed by curing the investment material, removing the crucible former and burning the wax pattern; and

25 a container for suspension to apply a solid lubricant onto the wax pattern or onto a portion of the plunger that comes into contact with the ceramics.

15. A kit used for the preparation of a ceramic artificial crown while imparting color and luster,  
30 comprising:

a staining powder and a glazing powder each containing, as a sintering component and on the basis of the oxides, 57 to 65% by weight of  $\text{SiO}_2$ , 8 to 18% by weight of  $\text{Al}_2\text{O}_3$ , 15 to 25% by weight of  $\text{B}_2\text{O}_3$ , 0.1 to 2% by  
35 weight of  $\text{ZnO}$ , 3 to 7% by weight of  $\text{Na}_2\text{O}$  and 2 to 8% by

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weight of  $\text{Li}_2\text{O}$ ; and

a container for a kneading solution that contains not less than 5% by weight of an ester compound having a boiling point of from 100 to 250°C.

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